

Notice of Allowability

Application No.

10/760,522

Examiner

Dwin M. Craig

Applicant(s)

NAKAMURA ET AL.

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/21/2007.
2. ☒ The allowed claim(s) is/are 1-3 and 5-32.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 3/27/07,5/21/07,6/6/07.

DETAILED ACTION

And

REASONS FOR ALLOWANCE

1. Claims 1-3 and 5-32 are allowed.

Formal Matters

2. Regarding the outstanding formal matters;

2.1 Regarding Applicants' arguments concerning the consideration of the document entitled, "Impact of Development Reaction Products on CD in view of Developer Alkaline Concentration Deviation" SPIE (2001) p. 729, have been persuasive, the Examiner has considered the reference on the merits.

2.2 The Examiner thanks the Applicants' for changing the title and withdraws the earlier objection to the same.

2.3 Regarding the Applicants' response to the objections of claims 2, 3, 6, 9, 10, 11, 14, 15, 20, 21, 24, 27 and 28, in view of Applicants' amendments to the claims these objections have been overcome and are hereby withdrawn.

2.4 Regarding the Applicant's amendments to the claims to overcome the 35 U.S.C. 101 rejections of claims 1-24 and 29-31, Applicants' arguments in combination with the amendments to the instant claims has been persuasive and the rejections under 35 U.S.C. 101 are hereby withdrawn. In view of claim 4 being cancelled, the rejection of that claim is moot.

2.5 Regarding Applicant's response to the 35 U.S.C. 112 2nd paragraph rejections of claims 7, 12, 18 and 28, these previously applied rejections are withdrawn in view of Applicants' amendments to the instant claims.

Allowable Subject Matter

And

Examiner's Reasons for Allowance

3. The following is an examiner's statement of reasons for allowance:

While U.S. Patent 6,218,313 to Tomita et al. teaches an optical intensity profile simulation and line width measuring device and method (see Figures 10 and 11 and the descriptive text) and U.S. Patent 5,889,686 to Mimotogi et al. teaches a profile simulation method, see the previously applied rejections of the same, and U.S. Patent 6,319,648 to Reiser teaches the role of Alkaline Concentration in microlithography, see the previously applied rejections as to the specific teachings of Reiser, **none of these references taken either alone or in combination with the prior art of record disclose**, calculating a spatial average value of the optical intensities as well as determining the alkaline concentration of the developer, specifically including:

(claim 1) "...calculating a spatial average value of the optical intensities..." and "...wherein the changing ratio is calculated from a logarithm of the measured dissolution rate to the alkaline concentration",

(claim 5) "...calculating a spatial average value of the optical intensities..." and "...wherein the changing ratio is calculated from a logarithm of the measured dissolution rate to a logarithm of the alkaline concentration...",

(claim 8) "...calculating a spatial average value of the optical intensities..." and "...calculating a changing ratio of a logarithm of a measured dissolution rate to an alkaline concentration of the developer...",

(claim 13) "...calculating a spatial average value of the optical intensities..." and "...calculating a changing ratio of a logarithm of a measured dissolution rate to an alkaline concentration of the developer...",

(claim 19) "...calculating spatial average values of the optical intensities in the reference positions..." and "...calculating a changing ratio of the measured dissolution rate relating to an alkaline concentration of the developer...",

(claim 25) "...calculate a spatial average value of the optical intensities..." and "...calculate a changing ratio of the measured dissolution rate relating to an alkaline concentration...",

(claim 26) "...calculate a spatial average value of the optical intensities" and "...obtain a calculated dissolution rate by using the spatial average value and the changing ratio of the logarithm of the measured dissolution rate to the alkaline concentration of the developer of the changing ratio of the logarithm of the measured dissolution rate to the logarithm of the alkaline concentration of the developer...",

(claim 27) "...calculate a spatial average value of optical intensities ..." and "...to calculate a changing ratio of the measured dissolution rate relating to an alkaline concentration of the developer...",

(claim 28) "...to calculate spatial average values of the optical intensities..." and "...to calculate a changing ratio of the measured dissolution rate relating to an alkaline concentration of the developer...",

(claim 29) "...calculating a spatial average value of the optical intensities..." and "...wherein the changing ratio is calculated from a logarithm of the measured dissolution rate to the alkaline concentration...",

(claim 30) "...calculating a spatial average value of the optical intensities..." and "...calculating a changing ratio of a logarithm of the measured dissolution rate to an alkaline concentration of the developer...",

(claim 31) "...calculating a spatial average value of the optical intensities..." and "...calculating a changing ratio of the measured dissolution rate relating to an alkaline concentration of the developer...",

(claim 32) "...calculating a spatial average value of the optical intensities in the reference positions..." and "...calculating a changing ratio of the measured dissolution rate relating to an alkaline concentration of the developer...",

in combination with the remaining elements and features of the claimed invention.

It is for these reasons that the claimed invention defines over the prior art of record.

3.1 Regarding dependent claims 2, 3, 6, 7, 9-12, 14-18 and 20-24 they are allowed for at least the reason that they depend upon an allowed base claim.

3.2 Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

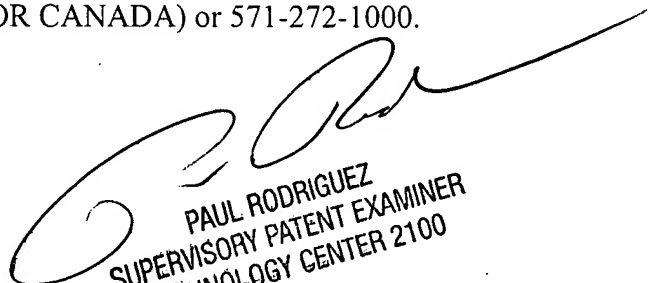
Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwain M. Craig whose telephone number is (571) 272-3710. The examiner can normally be reached on 10:00 - 6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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